



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,518	01/30/2002	William D. Fisher	10010469-1	3691

7590 03/13/2006  
AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER

FORMAN, BETTY J

ART UNIT PAPER NUMBER

1634

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/066,518

Applicant(s)

FISHER ET AL.

Examiner

BJ Forman

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10,13-19 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 1-10,13,16-19 and 44-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1634

## **DETAILED ACTION**

### ***Status of the Claims***

1. This action is in response to papers filed 9 January 2006 in which claims 1, 14-15 and 44 were amended. All of the amendments have been thoroughly reviewed and entered. The previous objections and rejections in the Office Action dated 21 October 2005 are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are discussed below as they apply to the instant grounds for rejection.

The amendments to Claims 14-15 place the claims in condition for allowance.

New grounds for rejection are discussed.

Claims 14-15 are in condition for allowance

Claims 1-10, 13-19 and 44-46 are under prosecution.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1634

3. Claims 1-10, 13, 18-19 and 44-46 are rejected under 35 U.S.C. 102(a) & (e) as being anticipated by Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001).

Regarding Claims 1 and 44, Kowallis et al teach a method for producing multiple arrays on a substrate (Fig. 1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets (e.g. row 88 represents one set, row 90 represents a second set, Fig. 6) and the method comprising dispensing drops onto the substrate from a drop dispensing head that dispenses while maintaining a gap (e.g. ink-jet deposition, Column 2, lines 22-25; Column 4, lines 20-23 and Claim 12), moving the head and substrate relative to one another along a bi-directional path wherein the moving comprises moving the head in a direction along an array set, moving the head in the opposite direction along the second array set without intervening movement of the head (first pass, direction 96 along array set 88, second pass in direction 98 along array set 90 (Fig. 6, Column 5, line 64-Column 6, line 10)).

Kowallis teaches the method wherein the head moves along the arrays for dispensing (Abstract) while moving the substrate and head relative to each other (i.e. the dispensing head moves providing the "relative movement" between the head and substrate, Fig. 2 & 6).

Kowallis further teaches displacement of the print head in a sideways orientation (distance "d" along the y-axis as illustrated in Fig. 5; Column 5, line 37-Column 6, line 11). Kowallis teach the deposition wherein line #96 is first printed in the arrays of row #88, then the dispenser is displaced along the y-axis to print line #98 in the arrays of row #90 (Fig. 5-6). Furthermore, the printing of line #98 is in a direction opposite of line #96 (Column 6, lines 1-10). Hence, Kowallis clearly anticipates the newly claimed sideways displacement.

Regarding Claim 2, Kowallis et al teach the arrays are biopolymer arrays (Column 1, lines 9-11).

Art Unit: 1634

Regarding Claim 3, Kowallis et al teach the first and second array sets are adjacent (e.g. row 88 represents one set, row 90 represents a second set, Fig. 6).

Regarding Claim 4, Kowallis et al teach the method wherein repeating is with the same two array sets (array sets 88 and 90 are bi-directionally printed, Column 5, line 64-Column 6, line 11).

Regarding Claim 5, Kowallis et al teach the method wherein each repeat of (b) is with a new array i.e. the head advances to the next array row for bi-directional printing (Column 5, line 64-Column 6, line 11).

Regarding Claim 6, Kowallis et al teach the method wherein each new second array set is adjacent the first set (Fig. 6, Column 5, line 64-Column 6, line 11).

Regarding Claim 7, Kowallis et al teach repeated relative movement between the head and substrate (Column 5, line 64-Column 6, line 11).

Regarding Claim 8, Kowallis et al teach the method wherein the head is re-loaded between repetitions (supplied from on-board reservoir, Column 4, lines 20-22). It is noted that the claims do not define a specific point during the repetitions, the head is re-supplied. Hence, the on-board supplying of Kowallis is encompassed by the claimed re-loading.

Regarding Claim 9, Kowallis et al teach the method wherein the repeated movement of the head is parallel and offset (Fig. 6, Column 5, line 64-Column 6, line 11).

Regarding Claim 10, Kowallis et al teach the method wherein the rows of features are straight lines (Fig. 1B).

Regarding Claim 13, Kowallis et al teach the method wherein the arrays have the same layout (Fig. 1B and 4, Column 4, lines 42-67).

Regarding Claim 18, Kowallis et al teach the method wherein the head has multiple dispensers (Fig. 2, Column 5, lines 37-63).

Regarding Claim 19, Kowallis et al teach the method wherein the dispensers are pulse jets (Column 2, lines 22-25; Column 4, lines 20-23 and Claim 12)

Art Unit: 1634

Regarding Claim 45, Kowallis et al teach the arrays are biopolymer arrays (Column 1, lines 9-11).

Regarding Claim 46, Kowallis et al teach the method wherein the head has multiple dispensers (Fig. 2, Column 5, lines 37-63).

#### **Response to Arguments**

4. Applicant asserts that the cited art does not teach or suggest relative movement between the substrate and dispenser or sideways displacement of the dispenser. The argument has been considered and not found persuasive. As cited above, Kowallis clearly teaches sideways displacement of the dispenser (Fig. 5-6). Furthermore, the claims are drawn to "relative movement" between the substrate and dispenser. The claimed "relative movement" does not require physical movement of both the substrate and dispenser as asserted. In contrast, relative movement between the two objects merely requires moving one of the objects (see attached definition of relative movement, Academic Press Dictionary of Science and Technology, 1992, page 1828). Kowallis teaches movement of the dispenser relative to the substrate thereby providing the relative movement as claimed.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1634

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001) in view of Gordon et al (U.S. Patent No. 5,486,452, issued 23 January 1996).

Regarding Claim 16, Kowallis et al teach the method for producing multiple arrays on a substrate (Fig.1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets (e.g. row 88 represents one set, row 90 represents a second set, Fig. 6) whereby a plurality of arrays are produced (Kowallis, Abstract) but they are silent regarding separation of the arrays.

However, preparation of multiple-array substrates and separation of the arrays was well known in the art at the time the claimed invention was made as taught by Gordon et al who teaches that such array production and separation provides for mass production of a test system (Column 6, lines 30-33). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the array separation of Gordon et al to the multiple arrays of Kowallis et al for the expected benefit of mass production of the test system as desired in the art (Gordon et al, Column 6, lines 30-33).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kowallis et al (U.S. Patent No. 6,228,659, issued 8 May 2001) in view of Zeleny et al (U.S. Patent No. 6,215,894, issued 10 April 2001).

Regarding Claim 17, Kowallis et al teach the method for producing multiple arrays on a substrate (Fig.1), wherein each array has multiples rows of features separated by inter-feature areas (Fig. 1B), the multiple arrays separated by inter-array areas, larger than the inter-feature areas (Column 2, lines 1-52 and Fig. 1) wherein the arrays are arranged in sets (e.g. row 88

Art Unit: 1634

represents one set, row 90 represents a second set, Fig. 6) but they are silent regarding addition of identifiers to the substrate.

However, array identifiers were well known in the art at the time the claimed invention was made as taught by Zeleny et al who teaches that placing identifiers on the array, provides for automated control of array scanning and selection of proper analytical protocols, increases speed of processing and reduces probability of error (Column 1, lines 5-1 and Column 2, lines 48-52). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the array identifiers taught by Zeleny et al to the arrays of Kowallis for the expected benefit of providing for automated control of array scanning and selection of proper analytical protocols, increased speed of processing and reduced probability of error as taught by Zeleny et al (Column 1, lines 5-1 and Column 2, lines 48-52).

#### ***Allowable Subject Matter***

8. Claims 14-15 are drawn to methods of making multiple arrays on a substrate using bi-directional printing. The claims further define the printing wherein a majority (e.g. 80%) of the rows of an array are printed while the print head is moving in the same direction. The prior art teaches single directional and bi-directional printing. However, the prior art does not teach or suggest bi-directional printing wherein a majority of rows are printed during movement along the same direction as claimed.

#### **Conclusion**

9. Claims 14-15 are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.



Art Unit: 1634

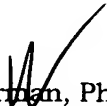
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.



BJ Forrester, Ph.D.  
Primary Examiner  
Art Unit: 1634  
March 8, 2006